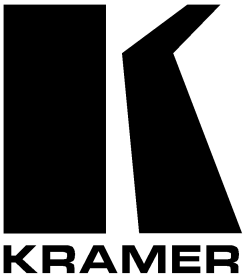
Kramer Electronics, Ltd.



USER MANUAL

Model:

VM-4DVI-R

1:4 DVI Distributor

Contents

1	**Introduction**	**1**
2	**Getting Started**	**1**
2.1	Quick Start	1
3	**Overview**	**3**
4	**Your VM-4DVI-R 1:4 DVI Distributor**	**3**
5	**Installing the VM-4DVI-R 1:4 DVI Distributor on a Rack**	**6**
6	**Connecting a VM-4DVI-R 1:4 DVI Distributor**	**7**
6.1	Acquiring EDID	8
7	**Technical Specifications**	**8**

Figures

Figure 1: VM-4DVI-R 1:4 DVI Distributor 4
Figure 2: Connecting a VM-4DVI-R 1:4 DVI Distributor 7

Tables

Table 1: Front Panel VM-4DVI-R 1:4 DVI Distributor Features 5
Table 2: Rear Panel VM-4DVI-R 1:4 DVI Distributor Features 5
Table 3: Technical Specifications of the VM-4DVI-R 1:4 DVI Distributor 8

1 Introduction

Welcome to Kramer Electronics (since 1981): a world of unique, creative and affordable solutions to the infinite range of problems that confront the video, audio and presentation professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 500-plus different models now appear in 8 Groups[1], which are clearly defined by function.

Congratulations on purchasing your Kramer **VM-4DVI-R** *1:4 DVI Distributor*[2]. The **VM-4DVI-R** is ideal for:

- Multiple screen applications
- Rental and staging

Each package includes the following items:

- **VM-4DVI-R** *1:4 DVI Distributor*
- Power cord
- This user manual[3]

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
- Use Kramer high performance high resolution cables[4]

2.1 Quick Start

This quick start chart summarizes the basic setup and operation steps.

1 GROUP 1: Distribution Amplifiers; GROUP 2: Video and Audio Switchers, Matrix Switchers and Controllers; GROUP 3: Video, Audio, VGA/XGA Processors; GROUP 4: Interfaces and Sync Processors; GROUP 5: Twisted Pair Interfaces; GROUP 6: Accessories and Rack Adapters; GROUP 7: Scan Converters and Scalers; and GROUP 8: Cables and Connectors

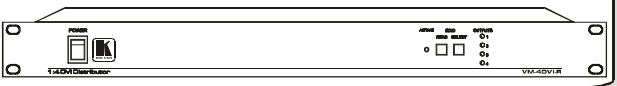
2 VM-4DVI instead of VM-4DVI-R may be printed on some versions of this machine

3 Download up-to-date Kramer user manuals from our Web site at http://www.kramerelectronics.com

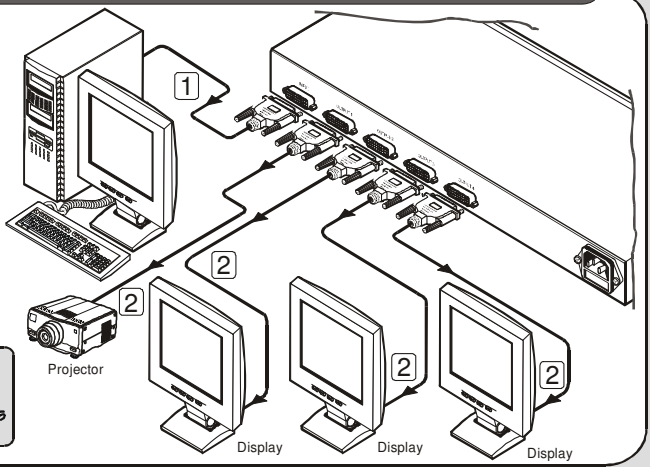
4 The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com

Step 1: Mount the machine - see section 5

Mount the machine in a rack or stick the 4 rubber feet to the underside



Step 2: Connect the input and the outputs - see section 6



1 Connect the input

2 Connect the outputs

Step 3: Turn the power ON

Step 4: Acquire the EDID - see section 6.1

- Turn the power ON
- Press the SELECT button to select the output
- While the selected output led is blinking, press the READ button
- Turn the power OFF
- Turn the power ON
- Press the READ button

Select a connected output to acquire the EDID or a disconnected output to restore the default EDID

3 Overview

The Kramer **VM-4DVI-R** is a 1:4 distribution amplifier for DVI-D (Digital) signals. It is one of Kramer's high quality digital products, allowing one or more of the outputs to be connected to receiving devices, thus making it a versatile, reliable component in a video system. The **VM-4DVI-R** distributes signals having resolutions up to UXGA, including all HDTV formats. Since high-resolution DVI signals are very sensitive to cable quality and to PCB layout, the **VM-4DVI-R** uses a uniquely designed PCB which includes all buffering, conditioning and amplifying circuitry to provide four high-level output signals.

In particular, the **VM-4DVI-R**:

- Includes a bandwidth of 1.65GHz
- Supports the DDWG DVI 1.0 standard
- Consists of a built-in re-clocking block that re-generates the DVI signal, so that several units may be cascaded
- Can read and store, in non-volatile memory, the EDID[1] block from one of the outputs, so it can then provide the EDID information to the DVI source even if the display device is not connected
- Stores a default EDID for fast and efficient connection of the unit[2]
- Has five DVI-I connectors, which are compatible with all types of DVI cables
- Is a cost-effective solution for distributing the TMDS signals used for DVI, and uses state-of-the-art line drivers on each of the 4 outputs
- Can be used in any application where multiple DVI monitors, projectors or other receiving devices are to be driven via a single DVI source

The **VM-4DVI-R** fits in one vertical space of a standard 19" professional rack enclosure (1U).

Achieving the best performance means:

- Connecting only good quality connection cables, thus avoiding interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Avoiding interference from neighboring electrical appliances and positioning your **VM-4DVI-R** away from moisture, excessive sunlight and dust

4 Your VM-4DVI-R 1:4 DVI Distributor

Figure 1 and Table 1 define the **VM-4DVI-R** *1:4 DVI Distributor*:

1 EDID is Extended Display Identification Data

2 The default EDID feature lets you connect the VM-4DVI-R without having connect a display to the output

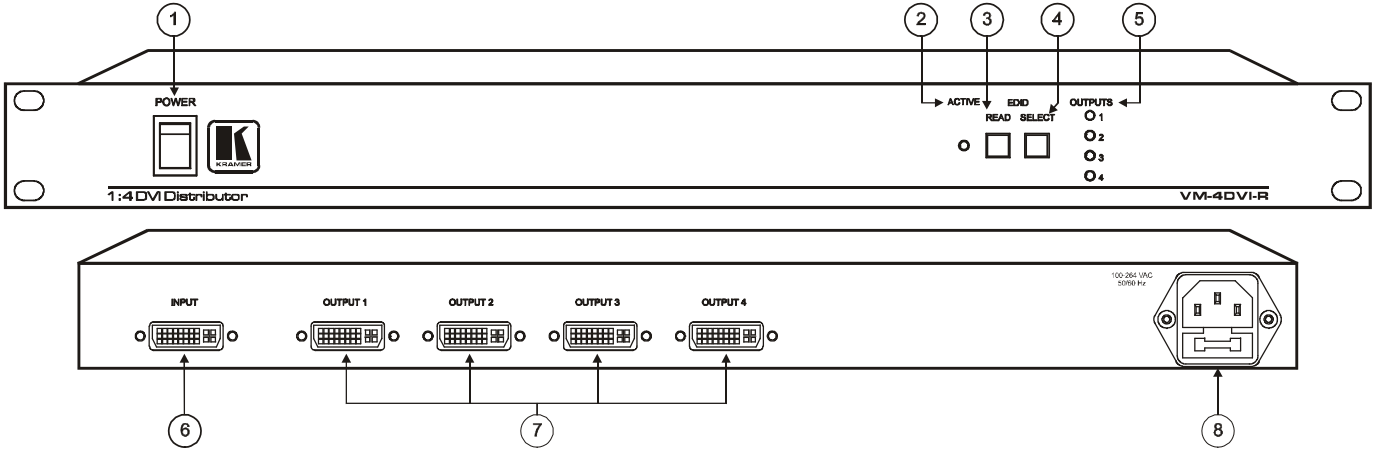


Figure 1: VM-4DVI-R 1:4 DVI Distributor

Table 1: Front Panel VM-4DVI-R 1:4 DVI Distributor Features

#	Feature		Function
1	*POWER* Switch		Illuminated switch for turning the unit ON or OFF
2	*ACTIVE* LED		Illuminates when the input is active; blinks when the input is not valid
3	*EDID*	*READ* Button	Press to read the EDID of the selected display
4		*SELECT* Button	Select the desired display for EDID information
5	*OUTPUT* LEDs		LEDs light when an output(s) is connected and active; LEDs blink when selecting EDID (see section 6.1)

Table 2: Rear Panel VM-4DVI-R 1:4 DVI Distributor Features

#	Feature	Function
6	*INPUT* DVI Connector	Connects to the DVI source
7	*OUTPUT* DVI Connectors	Connect to the DVI acceptors (from 1 to 4)
8	Power Connector with Fuse	AC connector enabling power supply to the unit

5 Installing the VM-4DVI-R 1:4 DVI Distributor on a Rack

This section describes what to do before installing on a rack and how to rack mount.

Before Installing on a Rack

Before installing on a rack, be sure that the environment is within the recommended range:	
Operating temperature range	+5 to +45 Deg. Centigrade
Operating humidity range	5 to 65% RHL, non-condensing
Storage temperature range	-20 to +70 Deg. Centigrade
Storage humidity range	5 to 95% RHL, non-condensing

CAUTION!!

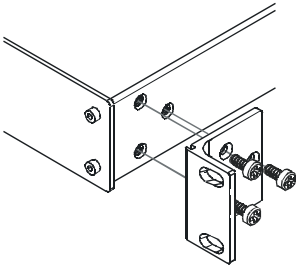
When installing on a 19" rack, avoid hazards by taking care that:

1. It is located within the recommended environmental conditions, as the operating ambient temperature of a closed or multi unit rack assembly may exceed the room ambient temperature.
2. Once rack mounted, enough air will still flow around the machine.
3. The machine is placed straight in the correct horizontal position.
4. You do not overload the circuit(s). When connecting the machine to the supply circuit, overloading the circuits might have a detrimental effect on overcurrent protection and supply wiring. Refer to the appropriate nameplate ratings for information. For example, for fuse replacement, see the value printed on the product label.
5. The machine is earthed (grounded) in a reliable way and is connected only to an electricity socket with grounding. Pay particular attention to supply connections other than direct connections to the branch circuit (for example, the use of power strips), and that you use only the power cord that is supplied with the machine.

How to Rack Mount

To rack-mount a machine:

1. Attach both ear brackets to the machine. To do so, remove the screws from each side of the machine (3 on each side), and replace those screws through the ear brackets.



2. Place the ears of the machine against the rack rails, and insert the proper screws (not provided) through each of the four holes in the rack ears.

Note that:

- **In some models, the front panel may feature built-in rack ears**
- Detachable rack ears can be removed for desktop use
- Always mount the machine in the rack before you attach any cables or connect the machine to the power
- If you are using a Kramer rack adapter kit (for a machine that is not 19"), see the Rack Adapters user manual for installation instructions (you can download it at: http://www.kramerelectronics.com)

6 Connecting a VM-4DVI-R 1:4 DVI Distributor

To connect the **VM-4DVI-R** as a 1:4 DVI distributor, do the following:

1. Connect a DVI source (for example, a computer) to the INPUT connector.
2. Connect the 4 OUTPUT connectors[1] to up to 4 DVI acceptors, as follows:
   - OUTPUT 1 connector to DVI acceptor 1 (for example, a projector)
   - OUTPUT 2 connector to DVI acceptor 2 (for example, a display)
   - OUTPUT 3 connector to DVI acceptor 3 (for example, a display)
   - OUTPUT 4 connector to DVI acceptor 4 (for example, a display)
3. Connect the power cord to the mains electricity.
4. Turn ON the POWER.
5. Acquire EDID (see section 6.1).

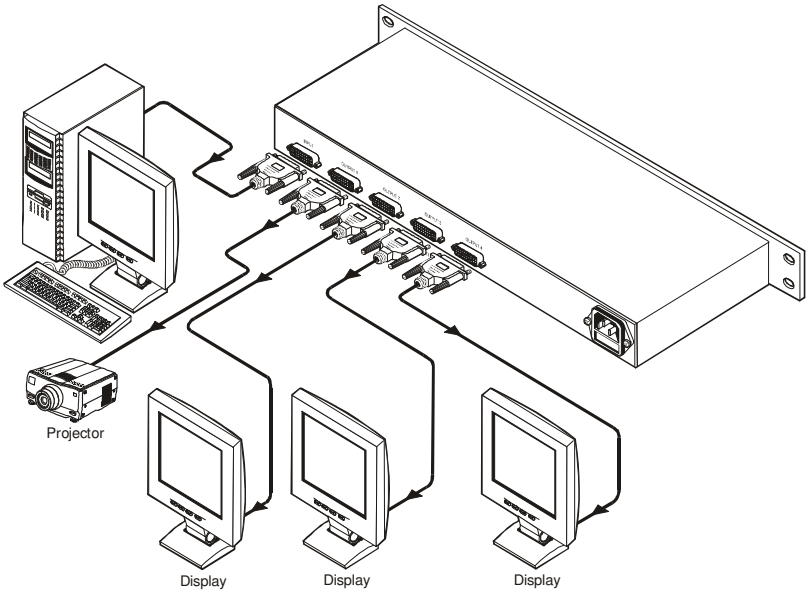


Figure 2: Connecting a VM-4DVI-R 1:4 DVI Distributor

1 As required. Up to 4 outputs can be connected on the VM-4DVI-R. Not all outputs need to be connected

6.1 Acquiring EDID

The **VM-4DVI-R** initially operates with the default EDID. This means that you can turn ON the power before connecting any of the acceptors.

To select an EDID, do the following:

1. Switch on the device.
2. Press the SELECT button to select the output from which you want to read the EDID information.

To restore the default EDID information, select an output to which an acceptor is not connected.

3. While the selected output LED blinks, press the READ button.
   The output LEDs no longer blink.
4. Switch the unit OFF and after few seconds switch it ON again.
   Wait until the output LEDs no longer blink.

   Note: If the stored EDID information is different from the EDID information on the output selected in step 2, the READ button blinks[1].
5. Press the READ button.
   The blinking stops and after few seconds the READ button no longer illuminates.

7 Technical Specifications

Table 3 includes the technical specifications:

Table 3: Technical Specifications[2] of the VM-4DVI-R 1:4 DVI Distributor

INPUT:	1 DVI, 1.2Vpp on a DVI Molex 24pin female connector; DDC signal 5Vpp (TTL)
OUTPUTS:	4 DVI, 1.2Vpp on DVI Molex 24pin female connectors; DDC signal 5Vpp (TTL)
BANDWIDTH:	1.65Gb/s
CONTROLS:	SELECT and READ buttons for selecting and storing EDID information
POWER SOURCE:	10 Watts (maximum) 220V
DIMENSIONS:	19-inch (W), 7-inch (D), 1U (H)
WEIGHT:	2.5 kg. (5.5 lbs.) approx.
ACCESSORIES:	Power cord

1 If it is not blinking, this indicates that the stored EDID information is identical to that of the output and there is no need to acquire the EDID

2 Specifications are subject to change without notice

LIMITED WARRANTY

Kramer Electronics (hereafter *Kramer*) warrants this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by Kramer, or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the Web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed.
3. Damage, deterioration or malfunction resulting from:
   - i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
   - ii) Product modification, or failure to follow instructions supplied with the product
   - iii) Repair or attempted repair by anyone not authorized by Kramer
   - iv) Any shipment of the product (claims must be presented to the carrier)
   - v) Removal or installation of the product
   - vi) Any other cause, which does not relate to a product defect
   - vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.
NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.
This equipment has been tested to determine compliance with the requirements of:

EN-50081:	"Electromagnetic compatibility (EMC); generic emission standard. Part 1: Residential, commercial and light industry"
EN-50082:	"Electromagnetic compatibility (EMC) generic immunity standard. Part 1: Residential, commercial and light industry environment".
CFR-47:	FCC Rules and Regulations: Part 15: "Radio frequency devices Subpart B – Unintentional radiators"

CAUTION!

- Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
- Use the supplied DC power supply to feed power to the machine.
- Please use recommended interconnection cables to connect the machine to other components.

For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found.
We welcome your questions, comments and feedback.

Safety Warning:
Disconnect the unit from the power supply before opening/servicing.

Kramer Electronics, Ltd.
Web site: www.kramerelectronics.com
E-mail: info@kramerel.com
P/N: 2900-000044 REV 3